

UNITED STATES PATENT AND TRADEMARK OFFICE GRANTED PATENT

5551427

September 3, 1996

Implantable device for the effective elimination of cardiac
arrhythmogenic sites

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APPL-NO: 387257 (08)

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GRANTED-DATE: September 3, 1996

ENGLISH-ABST:

An implantable devices for the effective elimination of an arrhythmogenic site from the myocardium is presented. By inserting small biocompatible conductors and/or insulators into the heart tissue at the arrhythmogenic site, it is possible to effectively eliminate a portion of the tissue from the electric field and current paths within the heart. The device would act as an alternative to the standard techniques for the removal of tissue from the effective contribution to the hearts electrical action which require the destruction of tissue via energy transfer (RF, microwave, cryogenic, etc.). This device is a significant improvement in the state of the art in that it does not require tissue necrosis.<P><P>In one preferred embodiment the device is a non conductive helix that is permanently implanted into the heart wall around the arrhythmogenic site. In variations on the embodiment, the structure is wholly or partially conductive, the structure is used as an implantable substrate for anti arrhythmic, inflammatory, or angiogenic pharmacological agents, and the structure is deliverable by a catheter with a disengaging stylet. In other preferred embodiments that may incorporate the same variations, the device is a straight or curved stake, or a group of such stakes that are inserted simultaneously.

Selected file: PLUSPAT

**** SS 1: Results 1**

1 / 1 PLUSPAT - @QUESTEL-ORBIT - image

PN - US5551427 A 19960903 [US5551427]

TI - (A) Implantable device for the effective elimination of cardiac arrhythmogenic sites

IN - (A) ALTMAN PETER A (US)

AP - US38725795 19950213 [1995US-0387257]

PR - US38725795 19950213 [1995US-0387257]

IC - (A) A61N-001/05

EC - A61F-002/00

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PCL - ORIGINAL (O) : 600374000; CROSS-REFERENCE (X) : 600508000

607120000 607121000 607122000 607126000 607127000 607128000

DT - Basic

CT - US4886074; US4953564; US5002067; US5019396; US5152299; US5239999; US5246438; US5281213; US5282844; US5295484; US5324324; US5342414; US5411535; US5431649; US5466255

Brugada, Josep et. al. "The Complexity of Mechanisms in Ventricular Tachycardia", Pace, Mar., Part II, pp. 680-686, 1993.

Ferguson, T Bruce; The Future of Arrhythmia Surgery J. Cardiovasc. E. P., vol. 5, pp. 621-634, Jul. 1994.

Nath, S., et al., Basic Aspects of Radiofrequency catheter ablation, J. of Cardiovasc. Electrophysiology, vol. 5, No. 10, 1994, pp. 863-876.

Scheinman, Melvin: Supraventricular Tachycardia: Drug therapy versus catheter ablation, Clinical Cardiology, vol. 17, Suppl. II, 11-15, 1994.

Ganz, L., Friedman, P.: "Supraventricular Tachycardia", NEJM, V332, No. 3, pp. 162-173, Jan. 1995.

Hsia, H. H., et. al.: Work up and management of patients with sustained and nonsustained monomorphic ventricular tachycardias, Cardiology clinics, vol. 11, No. 1, Feb., 1993, pp. 21-37.

Stokes, K., Bornzin, G. The electrode-biointerface: stimulation, in Modern Cardiac Pacing, ed. by. S. Barold, Mount Kisco, NY., Futura, 1985.

STG - (A) United States patent

AB - An implantable devices for the effective elimination of an arrhythmogenic site from the myocardium is presented. By inserting small biocompatible conductors and/or insulators into the heart tissue at the arrhythmogenic site, it is possible to effectively eliminate a portion of the tissue from the electric field and current paths within the heart. The device would act as an alternative to the standard techniques for the removal of tissue from the effective contribution to the hearts electrical action which require the destruction of tissue via energy transfer (RF, microwave, cryogenic, etc.). This device is a significant improvement in the state of the art in that it does not require tissue necrosis. In one preferred embodiment the device is a non conductive helix that is permanently implanted into the heart wall around the arrhythmogenic site. In variations on the embodiment, the structure is wholly or partially conductive, the structure is used as an implantable substrate for anti arrhythmic, inflammatory, or angiogenic pharmacological agents, and the

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1 / 1 LGST - ©LEGSTAT
PN - US 5551427 [US5551427]
AP - US 387257/95 19950213 [1995US-0387257]
DT - US-P
ACT - 19950213 US/AE-A
APPLICATION DATA (PATENT)
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20020709 US/RF
REISSUE APPLICATION FILED
20011211

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1 / 1 CRXX - ©CLAIMS/RRX
PN - 5,551,427 A 19960903 [US5551427]
PA - Altman, Peter A
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1 / 2 PAST - ©Thomson Derwent
AN - 200228-001830
PN - 5551427 A [US5551427]
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2 / 2 PAST - ©Thomson Derwent
AN - 200150-001391
PN - 5551427 A [US5551427]
OG - 2001-12-11
ACT - REISSUE PATENT
RL - USRE37463

Selected file: INPADOC

** SS 1: Results 2

1 / 2 INPADOC - ©INPADOC
PN - US 37463 E1 20011211 [US--37463]
TI - IMPLANTABLE DEVICE FOR PENETRATING AND DELIVERING AGENTS TO CARDIAC
TISSUE
IN - ALTMAN PETER A [US]
PA - ALTMAN PETER A [US]

AP - US 146120/98-A 19980901 [1998US-0146120]
PR - US 146120/98-A 19980901 [1998US-0146120]
US 387257/95-A5 19950213 [1995US-0387257]
IC - A61N-001/05

2 / 2 INPADO - ©INPADO

PN - US 5551427 A 19960903 [US5551427]
TI - IMPLANTABLE DEVICE FOR THE EFFECTIVE ELIMINATION OF CARDIAC
ARRHYTHMOGENIC SITES
IN - ALTMAN PETER A [US]
PA - ALTMAN PETER A [US]
AP - US 387257/95-A 19950213 [1995US-0387257]
PR - US 387257/95-A 19950213 [1995US-0387257]
IC - A61N-001/05

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PN - US 5551427 [US5551427]
AP - US 387257/95 19950213 [1995US-0387257]
DT - US-P
ACTE - 19950213 US/AE-A
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US 387257/95 19950213 [1995US-0387257]

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